

# Global steel market – the present and the future



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Think Tank of Deutsche Bank Group

**Deutsche Bank Research**



# Contents

**A**

**The global economic environment**

**B**

**Crude steel production – today & tomorrow**

**C**

**Focus on individual countries/regions**

**D**

**Conclusion**





## Slowdown in global economic growth

- 2008: Slowdown in growth, with global gross domestic product (GDP) increasing by “only” a price-adjusted 2.5%-plus (2007: 3.4%)
  - The driver of growth – the US – is losing momentum; US GDP to rise only almost 2%
  - Asia (ex Japan) continues to register above-average growth (7%)
  - EU growth of 1.3% much slower than in 2007
- 2009: Growth to remain moderate – global GDP increase of nearly 2.2% will still be higher than at the start of the decade
  - GDP growth in China will weaken slightly (9%) – but will remain high because of the continued appreciable rise in industrial output and booming export business
  - India: strong economic growth (7.5%) – industrial sector is weak, but the country should benefit from its strength in the service sector
  - US: relatively low growth because of low investment activity (1.5%)
  - EU: further slowdown (nearly 1%) due in part to reduced export momentum
- Until 2020 global real GDP will grow by only 2 ¾% – compared with more than 3% over the past ten years





## Oil price has skyrocketed since start of the millennium

### Price of Brent Blend

USD/barrel



Source: Global Insight

#### ■ Annual averages

- 2006: USD 66/bbl
- 2007: USD 73/bbl
- 2008: USD 108/bbl

#### ■ Reasons for oil price rise

- Increased global demand
- Production problems on the supply side





## Euro still very strong against the US dollar

### Exchange rate

USD/EUR



Source: Bundesbank

- **Baseline scenario**
  - USD/EUR exchange rate to hover around 1.50 until end-2008
- **Downside scenario**
  - USD/EUR exchange rate of 1.60 (predicted deep recession in US)



# Contents

**A**

**The global economic environment**

**B**

**Crude steel production – today & tomorrow**

**C**

**Focus on individual countries/regions**

**D**

**Conclusion**





## Global crude steel output has risen sharply since 1997

	Tonnes (million)		
	1997	2007	1997-2007 % p.a.
<b>EU-27</b>	193,9	210,3	0,8
Germany	45,0	48,5	0,8
Italy	25,8	32,0	2,2
France	19,8	19,3	-0,3
UK	18,5	14,3	-2,5
Spain	13,7	19,1	3,4
<b>CIS</b>	80,6	124,0	4,4
Russia	48,5	72,2	4,1
<b>North America</b>	129,5	132,1	0,2
US	98,5	97,2	-0,1
<b>South America</b>	37,0	48,3	2,7
Brazil	26,2	33,8	2,6
<b>Asia</b>	308,6	754,3	9,4
China	108,9	489,0	16,2
Japan	104,5	120,0	1,4
India	24,4	53,1	8,1
<b>World</b>	799,0	1.343,5	5,3

Source: IISI

- Increase of some 5% p.a. over the last ten years to more than 1.3 bn tonnes (2007)
- Faster-than-average growth in Asia of more than 9% p.a.
- Below-average growth in CIS, EU-27 and North/South America





## Steel industry concentration still low

Company	Country	Crude steel output
		(million tonnes)
2007		
ArcelorMittal	LU	116.4
Nippon Steel	JP	35.7
JFE Steel	JP	34.0
Posco	KR	31.1
Baosteel	CN	28.6
Tata Steel	IN	26.5
Anshan-Benxi	CN	23.6
Jiangsu Shagang	CN	22.9
Tangshan	CN	22.8
US Steel	US	21.5
Wuhan	CN	20.2
Nucor	US	20.0
Riva	IT	17.9
Gerdau	BR	17.9
Severstal	RU	17.3
ThyssenKrupp	DE	17.0

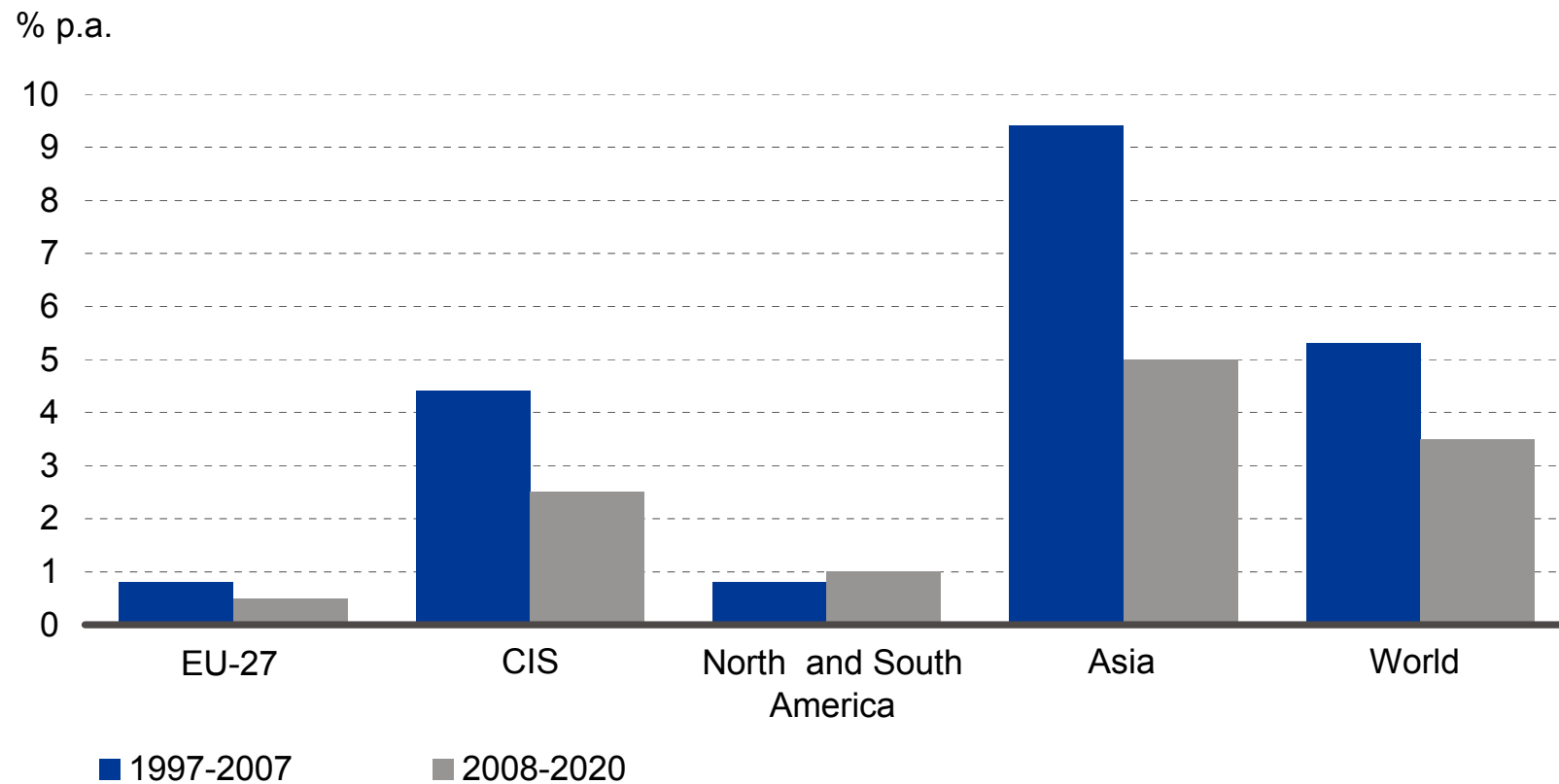
- ArcelorMittal by far the biggest steelmaker (nearly 120 million tonnes); global market share of nearly 10%
- The 15 biggest manufacturers account for one-third of global crude steel output
- Consolidation process likely to continue

Sources: Metal Bulletin, IISI, Stahlmarkt





## Global crude steel output growth to slow until 2020



Sources: IISI, DB Research





## Global crude steel output will continue vigorous expansion in absolute terms

### In 2020 over 2,000 million tonnes

	Tonnes (million)		2007-2020
	2007	2020	% p.a.
<b>EU-27</b>	210	224	0.5
<b>CIS</b>	124	171	2.5
<b>North Amerika</b>	132	141	0.5
<b>South Amerika</b>	48	63	2
<b>Asia</b>	754	1,422	5
<b>World</b>	1,344	2,101	3.5

- Annual growth of 3.5% until 2020 to 2.1 billion tonnes (1997-2007: over 5% p.a.)
- Strong increase in output in Asia (5% p.a.)
- Below-average growth in CIS and South America
- EU-27 and North America only a small increase (0.5% p.a. each)

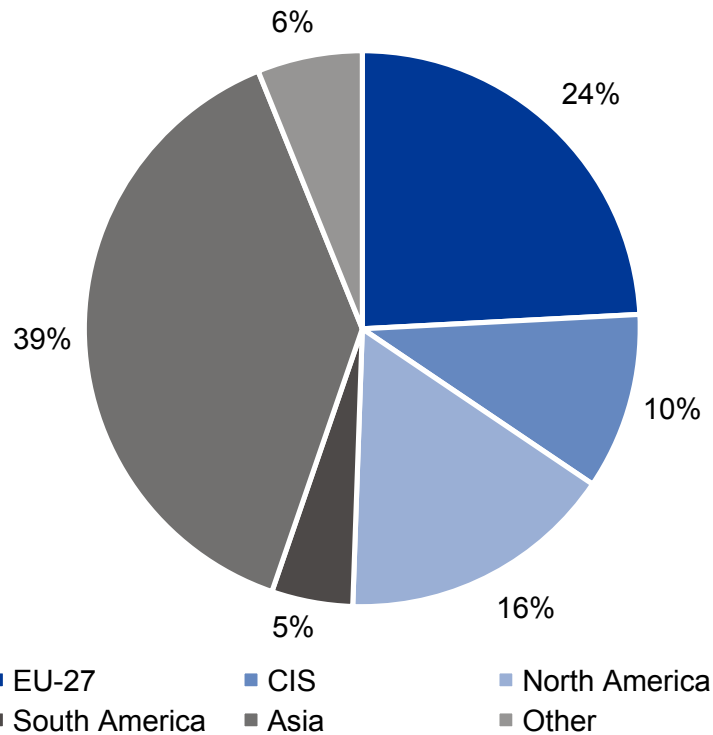
Sources: IISI, DB Research



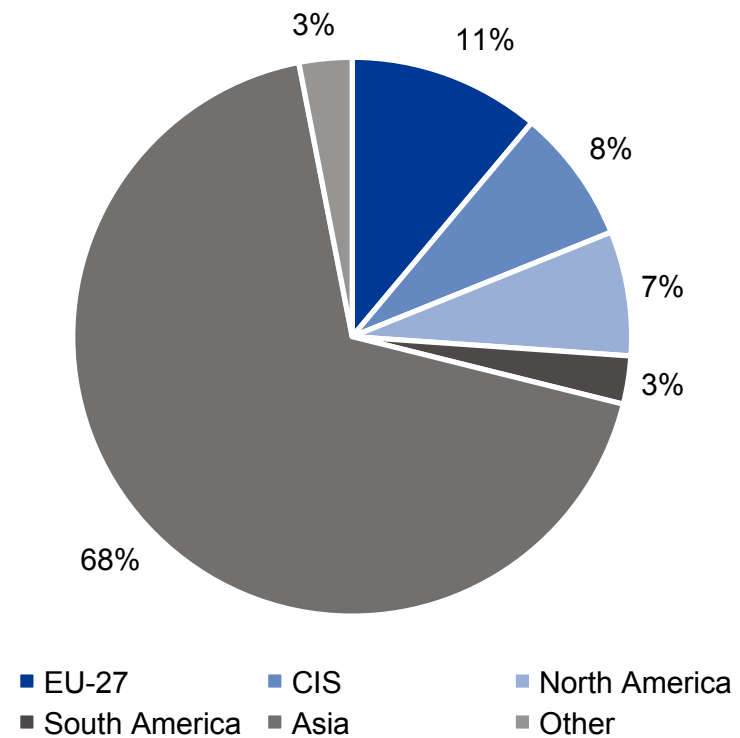


# Asia: Greatest leap forward in crude steel output

1997



2020



Sources: IISI, DB Research



# Contents



**A**

**The global economic environment**

**B**

**Crude steel production – today & tomorrow**

**C**

**Focus of individual countries/regions**

**D**

**Conclusion**





## China dominates the world steel market

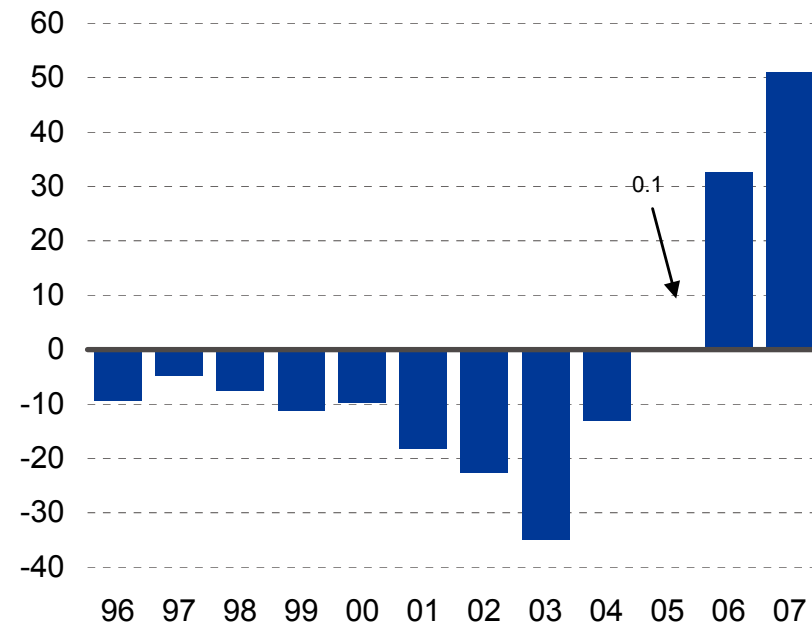
- China has been the biggest steelmaker since 1997 (market share: 36%)
- Has achieved technological parity with leading producers, but output of simple long products still exceeds that of flat products
- High real GDP growth of 8% p.a. until 2020 will bolster steel demand
- Enormous demand for steel thanks to huge infrastructure projects (dams, port facilities, railways, motorways, power stations et al.) and pent-up demand for cars, household appliances, as well as both residential and commercial buildings
- Crude steel output growth of 7% p.a. until 2020 realistic, i.e. China's global market share to then exceed 50%
- Nevertheless a net importer of certain high-grade steels



## China a net exporter of steel since 2005

### Net exports higher than total Germany in 2007

Tonnes (million)



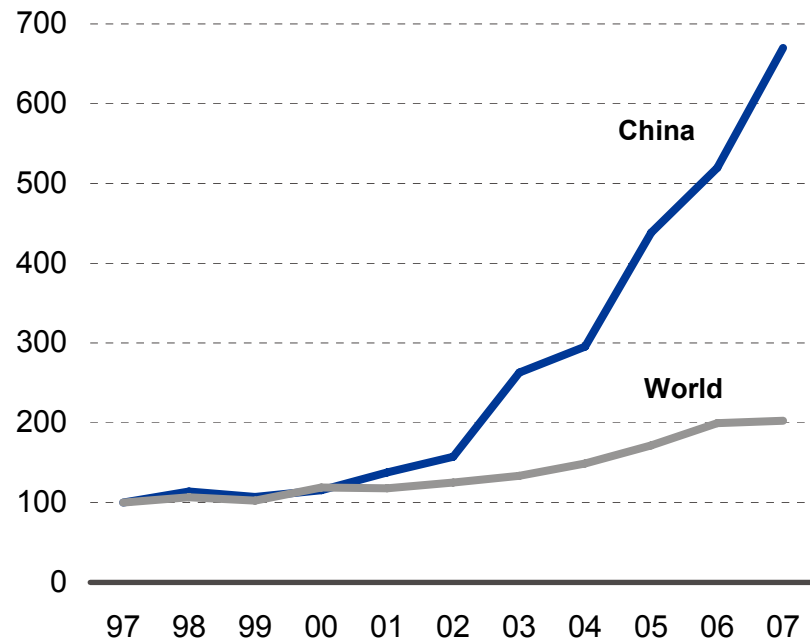
Source: IISI

- South Korea and Taiwan are particularly affected by the Chinese export boom
- Rising exports also to North America
- EU however less affected, companies have relied on technological superiority
- Besides simple steels for construction, China is also a net exporter of individual flat products



## Chinese shipbuilding heading for global top spot

### Completed ships Index 1997=100



Source: VSM

- China is currently number three behind South Korea and Japan
- High growth rate in number of completed ships 1997-2007: +21% p.a. (2002-2007: +34% p.a.)
- By 2020 China will be the global number one in shipbuilding
- Rising demand for steel is set to continue





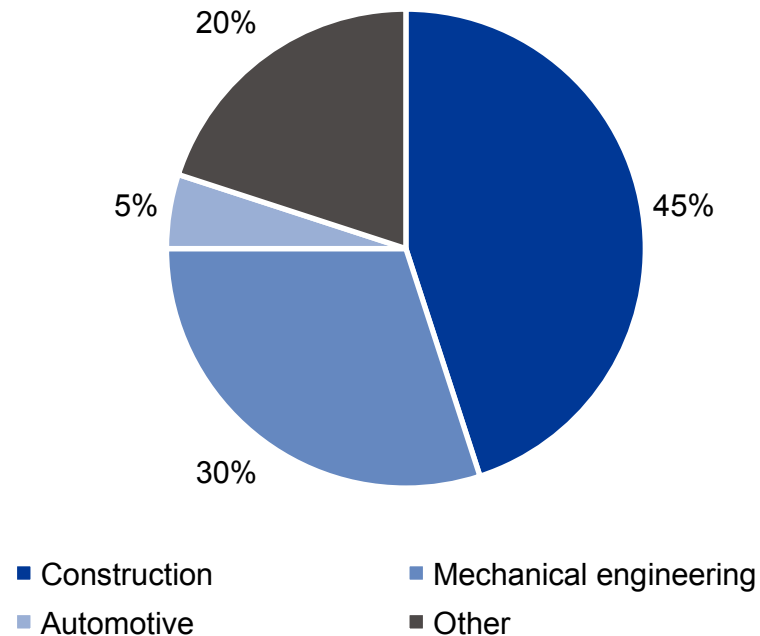
## India: Steelmakers expanding

- Extensive expansions in steelmaking capacity are planned in order to improve India's infrastructure
- Over the next 10 to 15 years India will require up to 10 million new homes per year, pent-up demand for mobility: low car ownership rate
- India has good growth prospects in the coming years on account of its huge potential demand in the infrastructure segment
- By 2020 growth in crude steel output of 5% p.a. to 100 million tonnes; nevertheless, still barely a 5% share of the global market
- Big companies like SAIL and Tata Steel want to mature into global players → marked increase in steel export share can be expected (currently around 15%)



## Construction is the biggest consumer of steel in India

Client industry breakdown 2006



- In 2006 construction was by far the biggest buyer of steel
- This will change little in future given the enormous construction requirements
  - A prospective 600 new shopping centres will be built every year until 2010

Sources: WV Stahl, DB Research

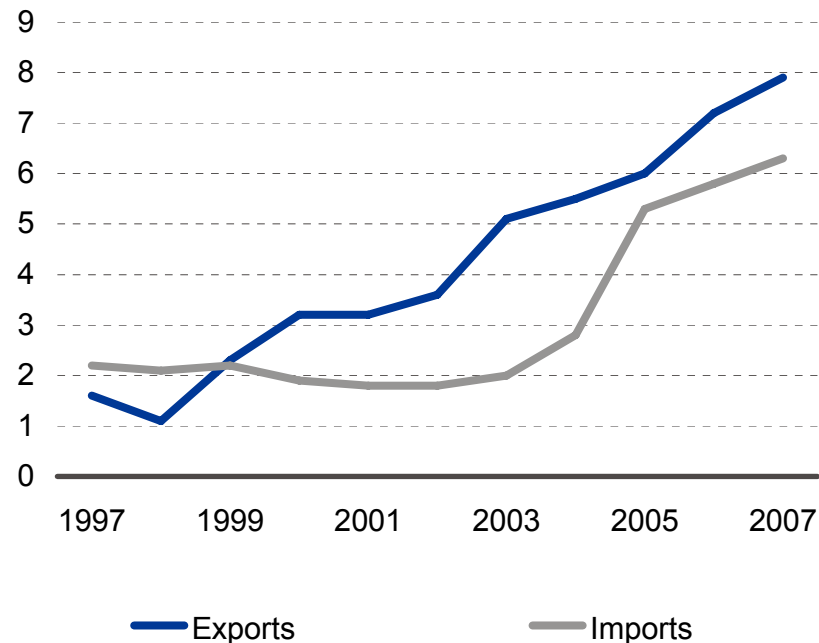




## External trade to gain momentum in India's steel sector

### Net exporter of steel since 1999

Tonnes (million)



Sources: IISI, WV Stahl

- Exports up 17% p.a. over the last 10 years to some 8 m tonnes
- Export share currently 15% compared with 7% in 1997
- Import growth of 11% p.a. Import share of 12% (1997: 9%)
- Since 2002 imports have grown faster than exports (28% vs. 17% p.a.)
- Important steel trading partners: South Korea, Japan, Indonesia





## CIS: Recovered from adjustment recession

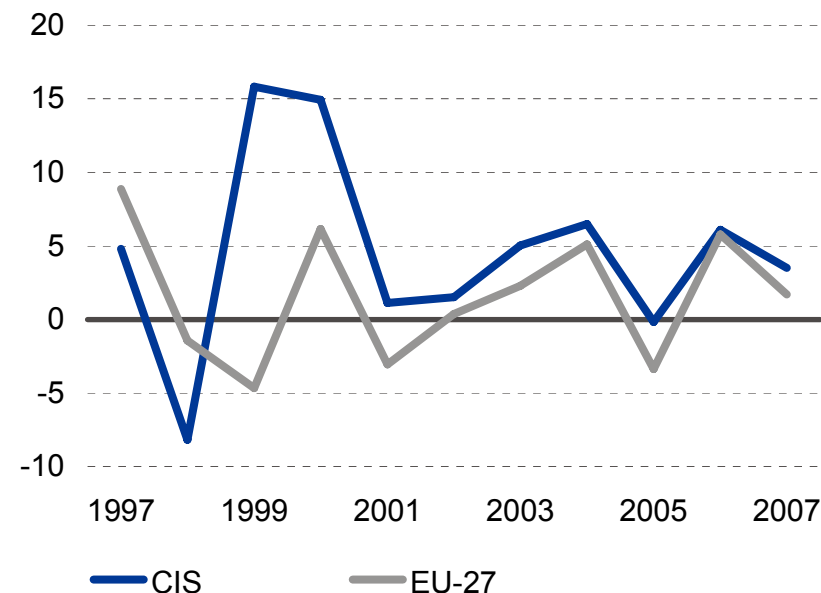
- Russia and Ukraine account for over 90% of CIS crude steel output
- Following the adjustment-driven recession from 1993 to 1998 – when steelmaking plummeted by about 25% – output is again on a clear uptrend
- The continuous casting share of total steel output (currently 50%) is likely to be driven higher by competition in the coming years (EU-27: 96%)
- Thanks to low labour costs and vertical integration, prices are much lower than the EU level, especially for long products
- Crude steel output to rise 2.5% p.a. until 2020, i.e. more slowly than over the last 10 years. CIS share of global steel output then 8% (2007: 9%)



## Growth in crude steel output higher in CIS than in EU-27

### Large increase in 1999/2000 will not be repeated

% yoy



Source: IISI

- Growth in the CIS has been 3.6 percentage points higher than in the EU-27 over the last ten years
- GDP rose much faster than in the EU-27. Real increase of some 6% p.a. over the last 10 years (EU-27: 2.5% p.a.)
- Some momentum has been lost recently – but nevertheless the trend is positive





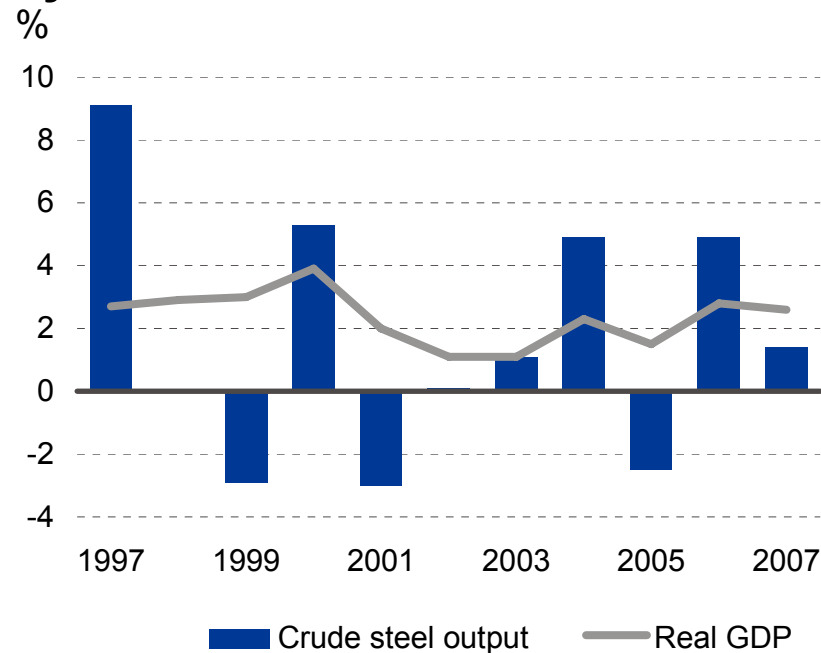
## EU: Low growth despite high-tech steel

- Declining specific steel consumption in developed economies (trend towards service society, well-developed steel-intensive infrastructure, substitution losses to plastics, non-ferrous metals and ceramics)
- Trend towards customer-oriented strategies and high-grade steels could not prevent below-average growth in steel output (1997-2007: +0.8% p.a.)
- Europe remains a major steelmaking region nevertheless. Major advantages thanks to production links with customers in the car industry, mechanical engineering and electrical engineering
- Crude steel production to grow 0.5% p.a. until 2020, i.e. world market share to shrink by 5 percentage points to just 11%



## EU: Steel output growth to lag behind GDP\*

### Crude steel production highly cyclical



- Major fluctuations in output over the last 10 years; but increase has been lower overall than the GDP growth rate

\* EU-15

Sources: IISI, DB Research





## Germany: Only marginal output growth expected

- Crude steel production 1997-2007: up 0.8% p.a. to 48.5 m tonnes
- German steel industry can hold its own in Europe
- Productivity in Germany has risen substantially – currently 526 tonnes per employee compared with around 452 in 2000. By comparison: around 300 tonnes per employee in the new EU states (2007)
- Number of employees has fallen dramatically over the last 10 years (down 18%; industry as a whole: down 5%)
- Segment focusing on qualitative growth and product innovations in collaboration with customers
- Crude steel output to grow just 0.5% p.a. to 52 million tonnes until 2020

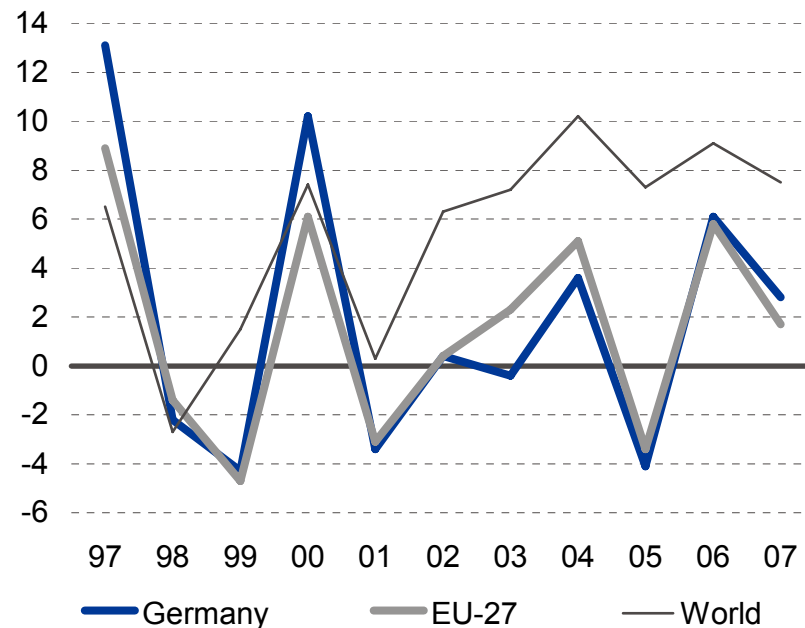




## Small increase in German steel output

### Much smaller increase than global average

% yoy



Source: IISI

- The German steel industry has posted only below-average growth in the past
- Cyclical slowdown between 2002 and 2005 resulted in below-average growth in Europe! (without this exceptional occurrence it would have in fact been slightly above par)

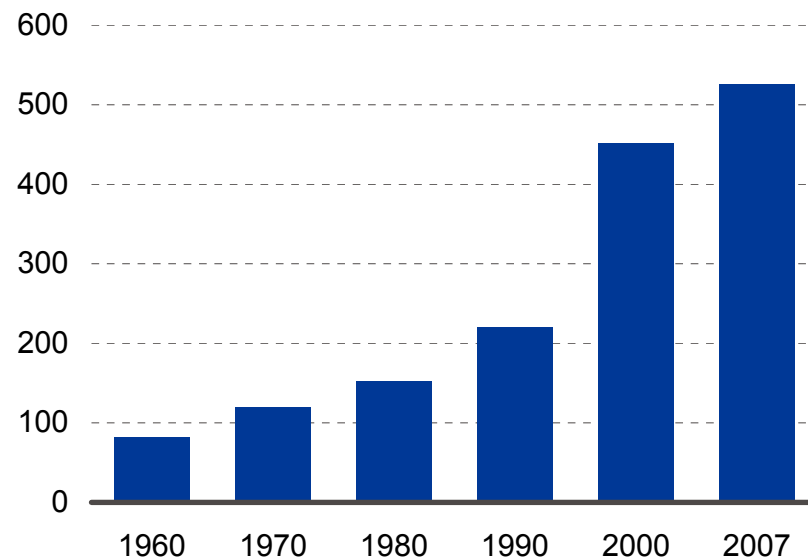




## Germany has seen major productivity gains

### Crude steel output per employee

Tonnes



- Productivity in Germany has risen strongly
- High degree of automation, modern facilities

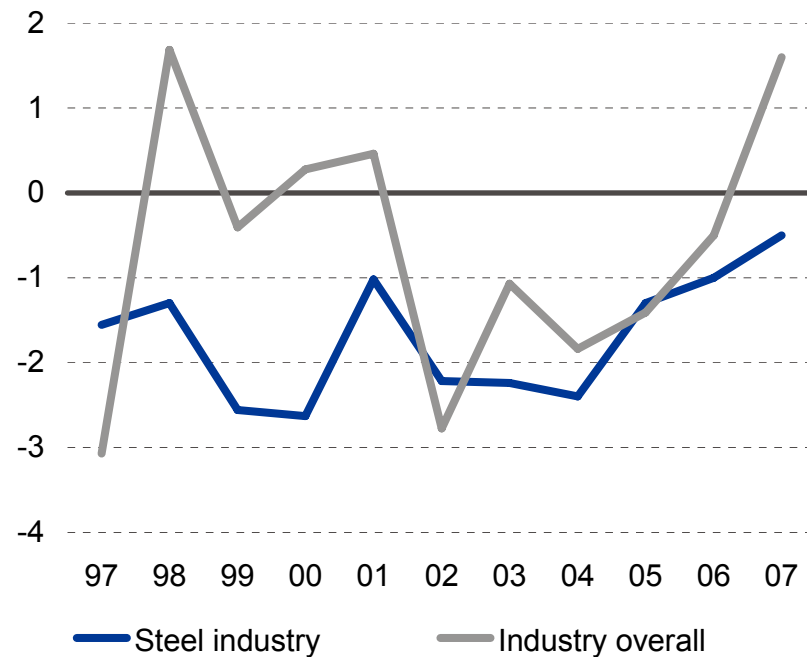
Source: WV Stahl



## Number of steelworkers declining rapidly in Germany

### On the decline until recently

% yoy



Source: Statistisches Bundesamt

- Number of steelworkers has fallen faster than in industry as a whole over the last 10 years – but has fluctuated heavily
- Decline in workforce slowing down





## North America: Steel output growth lagging behind GDP

- Crude steel output has been flat over the last 10 years
  - Resulting in sharp decline in world market share of 6 percentage points to 10%
- Steel industry consolidation well advanced: major steelmakers like Bethlehem and National Steel have disappeared; steel mills are currently state of the art
- Production conditions worse than in emerging markets with their vertically integrated steelworks
- Crude steel output expected to grow by 0.5% p.a. until 2020
  - ➔ Decline in world market share of 3 percentage points to 7%

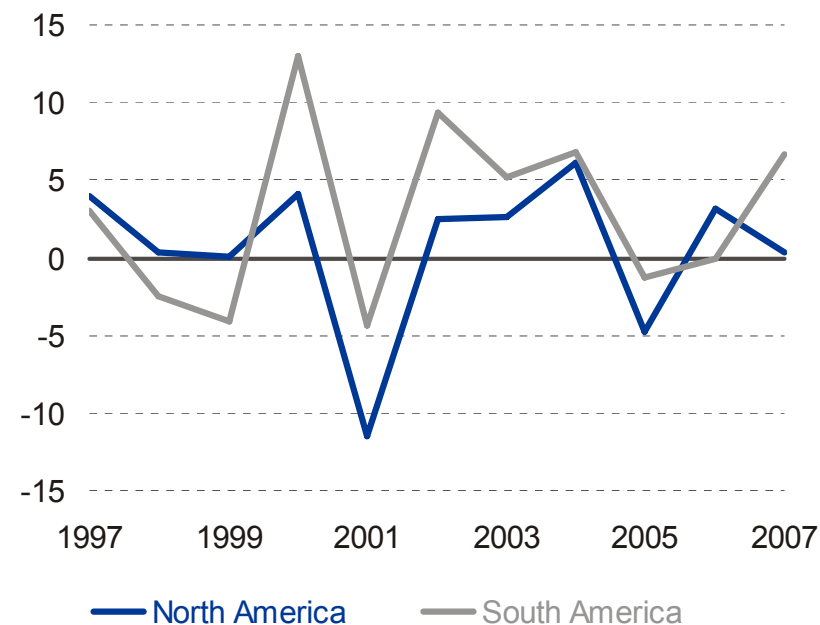




## Crude steel output flat in North America

### Growth in North America slower than in South America

% yoy



Source: IISI

- North American output growth of 0.2% p.a. over the last 10 years is the lowest regional reading
  - US (-0.1% p.a.), Canada (+0.5%), Mexico (+1.9%)
- South America has done much better with an increase of 2.7% p.a.





## South America: Favourable commodity base leading to capacity expansion

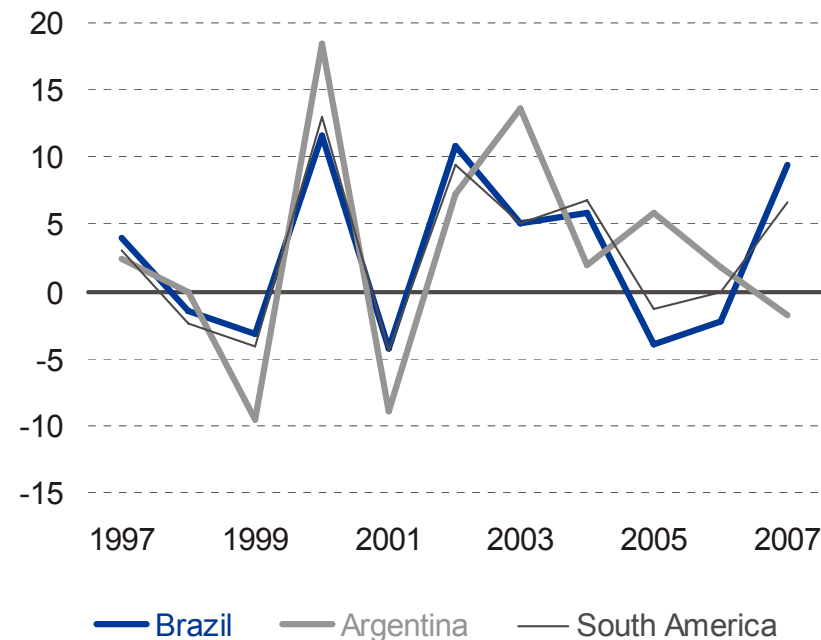
- Growing demand for steel has led to a significant rise in crude steel output over the last 10 years from 37 million to 48 million tonnes (a 30% increase overall)
- The drivers are the auto industry, construction sector and engineering. Steel capacity is being expanded again – Brazil has low-cost commodity base on account of large iron ore deposits
- Argentina's steel industry is mainly supplied with iron ore from Brazil
- Until 2020 growth in crude steel output of 2% to be expected – relatively stable share of world market of 3% (2007: 3.5%)



## South America: Crude steel output rising significantly

### Strong growth in Brazil recently

% yoy



Source: IISI

- Sector is dominated by Brazil and Argentina (together they are responsible for 80% of South America's crude steel output)
- Growth over the last 10 years of 2.7% p.a.
  - In Brazil above-average performance recently; Argentina underperforming the South American average
  - Trend set to continue in the coming years



# Contents

**A**

**The global economic environment**

**B**

**Crude steel production – today & tomorrow**

**C**

**Focus on individual countries/regions**

**D**

**Conclusion**





## High-speed production, increasing consolidation

- The global economy is losing momentum. Real GDP growth should average 2¾% until 2020 compared with just over 3% for the last 10 years
- The global steel industry will continue to expand during this period driven by the catch-up process in Asian markets
  - More and more Asian countries are forcing their way into the global market
- Consolidation process continuing in order to improve the cost structure
  - In 10 to 15 years the world steel market will be dominated by just a few steelmakers with annual production of over 100 million tonnes each
- Shift to higher-quality products – especially in Europe





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